Yet Our Treasures are Alive
The Rescue Operations for Cultural Properties
by the Rikuzentakata City Museum

Rikuzentakata City Museum
Masaru Kumagai, Chief Curator
March 11, 2011
2:46PM

About 130km East-Southeast off the Oshika Peninsula
Depth of 24km
Magnitude 9.0
Seismic Intensity 6 weak (Rikuzentakata City)
Tsunami approaching the inner city area beyond the seawall (March 11)
View from the 4th floor of the Iwate Prefectural Takata Hospital (March 11)

Photo Courtesy of Toshimichi Sato
Catastrophic damage of the inner city area

City Museum
City Library
The Storage for Archaeological Artifacts

Sea and Shell Museum

Photo Courtesy of Tokai Shimposha
Human Loss in Rikuzentakata City

Dead: 1,556
Missing: 216
Damage to Cultural Institutions

- **Museum**: Approx. 230,000 items
  - Destroyed
  - 5 dead, 1 missing (out of 6 workforce)

- **Library**: Approx. 100,000 items
  - Destroyed
  - 6 dead (out of 6 workforce)

- **Sea and Shell Museum**: Approx. 110,000 items
  - Destroyed
  - 1 dead (out of 7 workforce)

- **The Storage for Archaeological Artifacts**: Approx. 120,000 items
  - Destroyed
  - 6 Board of Education Lifelong Learning staff dead (out of 8 workforce)
Rikuzentakata City Rescue System

- 1 staff member (working at the Sea and Shell Museum and the City Museums concurrently)
- 1 former museum director
- 5 part-time employees (2 education board members, 3 Sea and Shell Museum staff)
- 4 temporary staff (former City Museum staff, former Sea and Shell Museum staff)

Commenced from April 1, but all members met together from late April.

7 out of 11 were victims (lost homes, family)
April 1 – June 17, 2011 (Excl. large items)

**Rescued about 460,000 items from the 4 facilities**

Transferred to:
Former Oide Elementary School (approx. 300,000 items)
Iwate Prefectural Museum (approx. 100,000 items)
Organizations outside of the prefecture (approx. 60,000 items)
Damage to the City Museum
First Floor Exhibition Room (April 21)
First Floor Exhibition Room after debris removal: more than 1m of sand accumulated on the floor
First Floor Storage Room (April 21)
Materials retrieved from First Floor Storage Room (April 30)
Clothing cases carried out from Second Floor Storage Room (filled with black and muddy sea water (May 6)
Preparation to carrying out old documents (City Library, April 2)
Temporary storage facility (Former Rikuzentakata City Oide Elementary School, June 7)
The Second Stage of Rescue (Stabilization Process)

Stabilization Process - Treatment of removing degradation factors in order to keep in a stable condition for long-term preservation

- Removal of Biological factors
- Removal of Chemical factors
- Removal of Physical factors

Removing mud → Sterilization → Desalination → Drying out → Follow-up Observation

Damaged Materials - Wide ranging

- Natural history materials (insects, plants, geological objects, taxidermy, shellfish etc.)
- Humanities materials (archeology, folklore, anthropology, history, art etc.)
- Others (books, letters etc.)

Need to collaborate with professional institutions etc.
## Stabilization Process for Paper Materials

<table>
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<tr>
<th>Step</th>
<th>Description</th>
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<tbody>
<tr>
<td>1.</td>
<td>Selection of materials suited for washing in water</td>
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<td>2.</td>
<td>Taking photos</td>
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<td>3.</td>
<td>Protection with non-woven fabrics</td>
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<td>4.</td>
<td>Cleaning with tap water</td>
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<td>5.</td>
<td>Cleaning by aqueous sodium hypochlorite solution</td>
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<td>6.</td>
<td>Desalination with tap water</td>
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<td>7.</td>
<td>Measurement of chloride ion concentration</td>
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<td>8.</td>
<td>Ultrasonic cleaning with tap water</td>
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<td>9.</td>
<td>Ultrasonic cleaning with purified water</td>
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<td>10.</td>
<td>Pressurized water removal</td>
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<td>11.</td>
<td>Natural drying</td>
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<td>12.</td>
<td>Checking materials and removing internal residual soil</td>
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<td>13.</td>
<td>Protection with waterproof paper and non-woven fabrics</td>
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<td>14.</td>
<td>Preliminary freezing</td>
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<td>15.</td>
<td>Vacuum freeze dry treatment</td>
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<td>16.</td>
<td>Material sterilization (fumigation with sterilizer)</td>
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<td>17.</td>
<td>Checking and classifying materials</td>
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<td>18.</td>
<td>First aid restoration for peeling parts</td>
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<td>19.</td>
<td>Digitization of restored materials (academically significant materials)</td>
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<td>20.</td>
<td>Preservation in neutral paper envelopes or boxes</td>
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<td>21.</td>
<td>Follow-up observation</td>
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</table>

Old manuscripts immediately after rescue

Old manuscript after desalination

Courtesy of Mr. Hideo Akanuma
Cleaning with tap water (removing mud)

Prevention of dust/harmful substances
Desalination of Papers

Courtesy of Mr. Hideo Akanuma
Desalination (For increasing efficiency)

Courtesy of Mr. Hideo Akanuma
Confirmation of Desalination Effect

Chloride Ions (Cl⁻)
Sodium Ions (Na⁺)

“Jodome” of rescued Iwate Prefecture Cultural Property Yoshida Family documents

(150 Tatecho created)
Stabilization Process for Folklore Artifacts

“Yuzukegata” (Before Desalination)

Securing with plaster before desalination to prevent deformation

“Mamenihera” (Before Desalination)

Courtesy of Mr. Hideo Akanuma
Desalination of Large Materials
(traditional fishing boat)
Restoring Insect Specimens

- Damaged stag beetle specimens
- Cleaning with mixed solution of ethanol/hydrogen peroxide surfactant water
- Joining dislocated legs
- Damaged butterfly specimen
- Removing mud
- Wings conditioned and dried after cleaning with mixed solution of ethanol/hydrogen peroxide surfactant water

Courtesy of Sayo Insect Museum, Iwate Prefectural Museum
Restoring Plant Specimens

Damaged plant specimens

Desalination after cleaning

Drying

Before

After

Courtesy of Tokushima Prefectural Museum
Restoring Stuffed Eagle at Yamashina Institute for Ornithology

1. Dismantled
2. Stuffing
3. Cleaning
4. New stuffing
5. Drying
6. Finished
Discoloration and Offensive Odors

Because organic chemical substances remaining in the materials were decomposed by microorganisms...

- Non-woven fabric turns yellow
- Unpleasant odors

About 3 ½ years after the disaster
Measures for Discoloration and Offensive Odors

(1) Neutral detergent

(2) Adding neutral detergent to stir

(3) Immediately after soaking in neutral detergent

(4) 24 hours after adding neutral detergent
Materials currently in tentative storage because of no secure treatment methods

- Art pieces (oil paintings etc.)
- Lacquered artifacts (coated)
- Leather items
- Materials written in ink
- Tin toys etc.

*Storage locations:
- Former Oide Elementary School
- Iwate Prefectural Museum
- Commercial refrigeratored storage etc.
  and other locations

Stored only with first aid treatment.
Currently considering stabilization treatment methods
Please do not take museum materials away. They are important treasures for reconstructing Takata’s nature, history and culture.
Reconstruction without cultural assets is not true reconstruction.